



SEQUENCE LISTING

<110> Cadet, Patrick
Stefano, George B.

<120> Opiate Receptors

<130> 09598-006001

<140> US 10/080,917

<141> 2002-02-22

<150> US 60/270,479

<151> 2001-02-22

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<151> 2001-12-05

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<211> 81

<212> DNA

<213> Homo Sapiens

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1

5

10

15

Gln Lys Pro Val Leu Leu Trp Phe Cys Asp

20

25

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gcaagatatt cacagaaaat tagcatcata gaaaaaaaaa naaaaaaaaa aaaaaaaaaa 180
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ctttgcaaga tagtgatctc catagattac tataacatgt tcaccagcat attcaccctc 180
tgcaccatga gtgttgatcg atacattgca gtctgccacc ctgtcaaggc cttagatttc 240
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tacgtcatca ttaaagcctt gggtacaatc ccagaaacta cgttccagac tgtttcttgg 660
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gagcaacaaa actccactcg aattcgtcag aacactagag accaccctc cacggccaat 840
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<211> 314
<212> PRT
<213> Homo Sapiens

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Gly Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile Val Ile Ser Ile
35 40 45
Asp Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu Cys Thr Met Ser
50 55 60
Val Asp Arg Tyr Ile Ala Val Cys His Pro Val Lys Ala Leu Asp Phe
65 70 75 80
Arg Thr Pro Arg Asn Ala Lys Ile Ile Asn Val Cys Asn Trp Ile Leu
85 90 95
Ser Ser Ala Ile Gly Leu Pro Val Met Phe Met Ala Thr Thr Lys Tyr
100 105 110
Arg Gln Gly Ser Ile Asp Cys Thr Leu Thr Phe Ser His Pro Thr Trp
115 120 125
Tyr Trp Glu Asn Leu Leu Lys Ile Cys Val Phe Ile Phe Ala Phe Ile
130 135 140
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<210> 7
<211> 476
<212> PRT
<213> Homo Sapiens
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<400> 7

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Arg	Lys	Glu	Ala	Ala	Glu	Ala	Leu	Gly	Thr	Arg	Lys	Val	Ser	Val	Leu	35	40	45	
Leu	Ala	Thr	Ser	His	Ser	Gly	Ala	Arg	Pro	Ala	Val	Ser	Thr	Met	Asp	50	55	60	
Ser	Ser	Ala	Ala	Pro	Thr	Asn	Ala	Ser	Asn	Cys	Thr	Asp	Ala	Leu	Ala	65	70	75	80
Tyr	Ser	Ser	Cys	Ser	Pro	Ala	Pro	Ser	Pro	Gly	Ser	Trp	Val	Asn	Leu	85	90	95	
Ser	His	Leu	Asp	Gly	Asn	Leu	Ser	Asp	Pro	Cys	Gly	Pro	Asn	Arg	Thr	100	105	110	
Asp	Leu	Gly	Gly	Arg	Asp	Ser	Leu	Cys	Pro	Pro	Thr	Gly	Ser	Pro	Ser	115	120	125	
Met	Ile	Thr	Ala	Ile	Thr	Ile	Met	Ala	Leu	Tyr	Ser	Ile	Val	Cys	Val	130	135	140	
Val	Gly	Leu	Phe	Gly	Asn	Phe	Leu	Val	Met	Tyr	Val	Ile	Val	Arg	Tyr	145	150	155	160
Thr	Lys	Met	Lys	Thr	Ala	Thr	Asn	Ile	Tyr	Ile	Phe	Asn	Leu	Ala	Leu	165	170	175	
Ala	Asp	Ala	Leu	Ala	Thr	Ser	Thr	Leu	Pro	Phe	Gln	Ser	Val	Asn	Tyr	180	185	190	
Leu	Met	Gly	Thr	Trp	Pro	Phe	Gly	Thr	Ile	Leu	Cys	Lys	Ile	Val	Ile	195	200	205	
Ser	Ile	Asp	Tyr	Tyr	Asn	Met	Phe	Thr	Ser	Ile	Phe	Thr	Leu	Cys	Thr	210	215	220	
Met	Ser	Val	Asp	Arg	Tyr	Ile	Ala	Val	Cys	His	Pro	Val	Lys	Ala	Leu	225	230	235	240
Asp	Phe	Arg	Thr	Pro	Arg	Asn	Ala	Lys	Ile	Asn	Val	Cys	Asn	Trp		245	250	255	
Ile	Leu	Ser	Ser	Ala	Ile	Gly	Leu	Pro	Val	Met	Phe	Met	Ala	Thr	Thr	260	265	270	
Lys	Tyr	Arg	Gln	Gly	Ser	Ile	Asp	Cys	Thr	Leu	Thr	Phe	Ser	His	Pro	275	280	285	
Thr	Trp	Tyr	Trp	Glu	Asn	Leu	Leu	Lys	Ile	Cys	Val	Phe	Ile	Phe	Ala	290	295	300	
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Leu	Arg	Leu	Lys	Ser	Val	Arg	Met	Leu	Ser	Gly	Ser	Lys	Glu	Lys	Asp	325	330	335	
Arg	Asn	Leu	Arg	Arg	Ile	Thr	Arg	Met	Val	Leu	Val	Val	Val	Ala	Val	340	345	350	
Phe	Ile	Val	Cys	Trp	Thr	Pro	Ile	His	Ile	Tyr	Val	Ile	Ile	Lys	Ala	355	360	365	
Leu	Val	Thr	Ile	Pro	Glu	Thr	Thr	Phe	Gln	Thr	Val	Ser	Trp	His	Phe	370	375	380	
Cys	Ile	Ala	Leu	Gly	Tyr	Thr	Asn	Ser	Cys	Leu	Asn	Pro	Val	Leu	Tyr	385	390	395	400
Ala	Phe	Leu	Asp	Glu	Asn	Phe	Lys	Arg	Cys	Phe	Arg	Glu	Phe	Cys	Ile	405	410	415	
Pro	Thr	Ser	Ser	Asn	Ile	Glu	Gln	Gln	Asn	Ser	Thr	Arg	Ile	Arg	Gln	420	425	430	
Asn	Thr	Arg	Asp	His	Pro	Ser	Thr	Ala	Asn	Thr	Val	Asp	Arg	Thr	Asn	435	440	445	
His	Gln	Asn	Tyr	Tyr	Ile	Ile	His	Arg	Leu	Cys	Cys	Asn	Thr	Pro	Leu				

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 Ile Ser Gln Lys Pro Val Leu Leu Trp Phe Cys Asp
 465 470 475

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 <212> DNA
 <213> Homo Sapiens

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 ccgaccggca gtccctccat gatcacggcc atcacgatca tggccctcta ctccatcggtg 240
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 atgaagactg ccaccaacat ctacattttc aaccttgctc tggcagatgc cttagccacc 360
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 ctttgcaaga tagtgatctc catagattac tataacatgt tcaccagcat attcacctc 480
 tgcaccatga gtgttgatcg atacattgca gtctgccacc ctgtcaaggc cttagatttc 540
 cgtactcccc gaaatgccaa aattatcaat gtctgcaact ggatcctctc ttcagccatt 600
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 <211> 414
 <212> PRT
 <213> Homo Sapiens

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 35 40 45
 Arg Thr Asp Leu Gly Gly Arg Asp Ser Leu Cys Pro Pro Thr Gly Ser
 50 55 60
 Pro Ser Met Ile Thr Ala Ile Thr Ile Met Ala Leu Tyr Ser Ile Val
 65 70 75 80
 Cys Val Val Gly Leu Phe Gly Asn Phe Leu Val Met Tyr Val Ile Val
 85 90 95
 Arg Tyr Thr Lys Met Lys Thr Ala Thr Asn Ile Tyr Ile Phe Asn Leu
 100 105 110
 Ala Leu Ala Asp Ala Leu Ala Thr Ser Thr Leu Pro Phe Gln Ser Val
 115 120 125
 Asn Tyr Leu Met Gly Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile
 130 135 140
 Val Ile Ser Ile Asp Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu

145		150		155		160									
Cys	Thr	Met	Ser	Val	Asp	Arg	Tyr	Ile	Ala	Val	Cys	His	Pro	Val	Lys
		165		170		175									
Ala	Leu	Asp	Phe	Arg	Thr	Pro	Arg	Asn	Ala	Lys	Ile	Ile	Asn	Val	Cys
		180		185		190									
Asn	Trp	Ile	Leu	Ser	Ser	Ala	Ile	Gly	Leu	Pro	Val	Met	Phe	Met	Ala
		195		200		205									
Thr	Thr	Lys	Tyr	Arg	Gln	Gly	Ser	Ile	Asp	Cys	Thr	Leu	Thr	Phe	Ser
		210		215		220									
His	Pro	Thr	Trp	Tyr	Trp	Glu	Asn	Leu	Leu	Lys	Ile	Cys	Val	Phe	Ile
		225		230		235									
Phe	Ala	Phe	Ile	Met	Pro	Val	Leu	Ile	Ile	Thr	Val	Cys	Tyr	Gly	Leu
		245		250		255									
Met	Ile	Leu	Arg	Leu	Lys	Ser	Val	Arg	Met	Leu	Ser	Gly	Ser	Lys	Glu
		260		265		270									
Lys	Asp	Arg	Asn	Leu	Arg	Arg	Ile	Thr	Arg	Met	Val	Leu	Val	Val	Val
		275		280		285									
Ala	Val	Phe	Ile	Val	Cys	Trp	Thr	Pro	Ile	His	Ile	Tyr	Val	Ile	Ile
		290		295		300									
Lys	Ala	Leu	Val	Thr	Ile	Pro	Glu	Thr	Thr	Phe	Gln	Thr	Val	Ser	Trp
		305		310		315									
His	Phe	Cys	Ile	Ala	Leu	Gly	Tyr	Thr	Asn	Ser	Cys	Leu	Asn	Pro	Val
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Leu	Tyr	Ala	Phe	Leu	Asp	Glu	Asn	Phe	Lys	Arg	Cys	Phe	Arg	Glu	Phe
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Cys	Ile	Pro	Thr	Ser	Ser	Asn	Ile	Glu	Gln	Gln	Asn	Ser	Thr	Arg	Ile
		355		360		365									
Arg	Gln	Asn	Thr	Arg	Asp	His	Pro	Ser	Thr	Ala	Asn	Thr	Val	Asp	Arg
		370		375		380									
Thr	Asn	His	Gln	Asn	Tyr	Ile	Ile	His	Arg	Leu	Cys	Cys	Asn	Thr	
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Pro	Leu	Ile	Ser	Gln	Lys	Pro	Val	Leu	Leu	Trp	Phe	Cys	Asp		
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<210> 10

<211> 1239

<212> DNA

<213> Rattus norvegicus

<400> 10

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<210> 11

<211> 412

<212> PRT

<213> Rattus norvegicus

<400> 11

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Asp Leu Gly Gly Arg Asp Ser Leu Cys Pro Pro Thr Gly Ser Pro Ser
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Met Ile Thr Ala Ile Thr Ile Met Ala Leu Tyr Ser Ile Val Cys Val
65          70          75          80
Val Gly Leu Phe Gly Asn Phe Leu Val Met Tyr Val Ile Val Arg Tyr
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Thr Lys Met Lys Thr Ala Thr Asn Ile Tyr Ile Phe Asn Leu Ala Leu
          100          105          110
Ala Asp Ala Leu Ala Thr Ser Thr Leu Pro Phe Gln Ser Val Asn Tyr
          115          120          125
Leu Met Gly Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile Val Ile
          130          135          140
Ser Ile Asp Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu Cys Thr
145          150          155          160
Met Ser Val Asp Arg Tyr Ile Ala Val Cys His Pro Val Lys Ala Leu
          165          170          175
Asp Phe Arg Thr Pro Arg Asn Ala Lys Ile Ile Asn Val Cys Asn Trp
          180          185          190
Ile Leu Ser Ser Ala Ile Gly Leu Pro Val Met Phe Met Ala Thr Thr
          195          200          205
Lys Tyr Arg Gln Gly Ser Ile Asp Cys Thr Leu Thr Phe Ser His Pro
          210          215          220
Thr Trp Tyr Trp Glu Asn Leu Leu Lys Ile Cys Val Phe Ile Phe Ala
225          230          235          240
Phe Ile Met Pro Val Leu Ile Ile Thr Val Cys Tyr Gly Leu Met Ile
          245          250          255
Leu Arg Leu Lys Ser Val Arg Met Leu Ser Gly Ser Lys Glu Lys Asp
          260          265          270
Arg Asn Leu Arg Arg Ile Thr Arg Met Val Leu Val Val Ala Val
          275          280          285
Phe Ile Val Cys Trp Thr Pro Ile His Ile Tyr Val Ile Ile Lys Ala
          290          295          300
Leu Val Thr Ile Pro Glu Thr Thr Phe Gln Thr Val Ser Trp His Phe
305          310          315          320
Cys Ile Ala Leu Gly Tyr Thr Asn Ser Cys Leu Asn Pro Val Leu Tyr
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Ala Phe Leu Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ile
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Pro Thr Ser Ser Asn Ile Glu Gln Gln Asn Ser Thr Arg Ile Arg Gln
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Asn Thr Arg Asp His Pro Ser Thr Ala Asn Thr Val Asp Arg Thr Asn
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 aaaacctgct gaagatctgt gttttcatct tcgccttcat tatgccagtg ctcatcatta 960
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 catctctttc atctagctcc ataattgcaa gggaagagat tagcatgaaa ggtaatctga 2040
 aacacagtca tgtgtcagct gtagaaagggt tgattctcat gcactgcaaa tacttccaaa 2100
 gagtcatcat gggggatttt tcattcttag gctttcagtg gtttggtcc 2149

<210> 13
 <211> 1473
 <212> DNA
 <213> Homo Sapiens

<400> 13
 gcagaggaga atgtcagatg ctcagctcgg tccctccgc ctgacgtcc tctctgtctc 60


```

agccaggact ggtttctgta agaaacagca ggagctgtgg cagcggcgaa aggaagcggc 120
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cctctactcc atcgtgtgcg tgggtggggt cttcggaac ttcttggtca tgtatgtgat 480
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gggtatatcta ctggggatga cataaaaatt ataaggcttt gtgctaaact aggagttaa 1440
tccattatag aggatgagaa tggaggggag ctt 1473

```

```

<210> 14
<211> 28
<212> DNA
<213> Homo Sapiens

```

```

<220>
<223> Primer

```

```

<400> 14
ggtactggga aaacctgctg aagatctg 28

```

```

<210> 15
<211> 28
<212> DNA
<213> Homo Sapiens

```

```

<220>
<223> Primer

```

```

<400> 15
ggtctctagt gttctgacga attcgagt 28

```

```

<210> 16
<211> 12
<212> PRT
<213> Homo Sapiens

```

```

<220>
<223> Peptide fragment

```

```

<400> 16
Leu Glu Asn Leu Glu Ala Glu Thr Ala Pro Leu Pro

```

```

1              5              10

<210> 17
<211> 13
<212> DNA
<213> Homo Sapiens

<400> 17
atacaccaag atg                                     13

<210> 18
<211> 453
<212> DNA
<213> Homo Sapiens

<400> 18
ctagaaaatc tggaagcaga aactgctccg ttgccctaac agggctctcat gccattccga      60
ccttcaccaa gcttagaagc caccatgtat gtggaagcag gttgcttcaa gaatgtgtag      120
gaggctctaa ttctctagga aagtgcctgc ttttaggtca tccaacctct ttctctctg      180
gccactctgc tctgcacatt agagggacag ccaaagtaa gtggagcatt tggaaggaaa      240
ggaatatacc acaccgagga gtccagtttg tgcaagacac ccagtggaac caaaacccat      300
cgtgggtatgt gaattgaagt catcataaaa ggtgaccctt ctgtctgtaa gatatttattt      360
tcaagcaaat atttatgacc tcaacaaaga agaaccatct tttgttaagt tcaccgtagt      420
aacacataaa gtaaattgcta cctctgatca aag                                     453

<210> 19
<211> 30
<212> DNA
<213> Homo Sapiens

<220>
<223> Primer

<400> 19
ggtactggga aaacctgctg aagatctgtg                                     30

<210> 20
<211> 27
<212> DNA
<213> Homo Sapiens

<220>
<223> Primer

<400> 20
catccatgac cacagtgggc aaggcac                                     27

<210> 21
<211> 910
<212> DNA
<213> Homo Sapiens

<220>
<221> misc_feature
<222> (1)...(910)
<223> n = A,T,C or G

```

```

<400> 21
tgggtgctgggt ggtgggtggct gtgttcatcg tctgctggac tcccattcac atttacgtca      60
tcattaaagc cttgggttaca atcccagaaa ctacgttcca gactgtttct tggcacttct      120
gcattgctct aggttacaca aacagctgcc tcaacccagt cctttatgca tttctggatg      180
aaaacttcaa acgatgcttc agagagttct gtatcccaac ctcttccaac attgagcaac      240
aaaactccac tcgaattcgt cagaacacta gagaccaccc ctccacggcc aatacagtgg      300
atagaactaa tcatcaggta cgcagtctct agaattagggt atatctactg gggatgacat      360
aaaaattata aggccttctg ctaaaactagg agtttaatcc attatagagg atgagaatgg      420
aggaagggaa agcaaattgt ggtttaaggg ttaaagaaga ggtttgata taaactgggg      480
tcctttaaat ttgcctgtac atattcatta aggtttaagg atccccaatg ggnaaaacca      540
tggaactttt caaaatacct tttttatggc ctttactttt atgcaaaatt tatgacttta      600
gcacattata gaaataattc tgatctagaa tccttttcat tttcccaga attattatat      660
aatccataga tggtctgcaa taccctctt atttctcaaa agccagtcct gctctggttt      720
ctggattaaa gagagagggg gagtgccctg cccactgtgg tcatggatgc aagatattca      780
cagaaaatta gcatcataga aaaaaaannn aaaaaaaaaa aaaaaaaanc atgtcggccg      840
cctcggccaa acatcgggtc gagcatgcat ctaggcgggc caattccgcc cctctcccc      900
ccngcnnttt                                     910

```

```

<210> 22
<211> 225
<212> DNA
<213> Homo Sapiens

```

```

<220>
<221> misc_feature
<222> (1)...(225)
<223> n = A,T,C or G

```

```

<400> 22
ggaaggggaaa gcaaatgtgt gtttaagggg taaagaagag gtttgatat aaactggggg      60
cctttaaat tgctgtaca tattcattaa gggttaagga tcccaatgg gnaaaacat      120
ggaacttttc aaaatacctt ttttatggcc tttactttta tgcaaaattt atgactttag      180
cacattatag aaataattct gatctagaat ccttttcatt ttccc                                     225

```

```

<210> 23
<211> 1670
<212> DNA
<213> Homo Sapiens

```

```

<220>
<221> misc_feature
<222> (1)...(1670)
<223> n = A,T,C or G

```

```

<400> 23
atacaccaag atgaagactg ccaccaacat ctacattttc aaccttgctc tggcagatgc      60
cttagccacc agtaccctgc ccttcagag tgtgaattac ctaatgggaa catggccatt      120
tggaaccatc ctttgcaaga tagtgatctc catagattac tataacatgt tcaccagcat      180
attcaccctc tgcacatga gtgttgatcg atacattgca gtctgccacc ctgtcaaggc      240
cttagatttc cgtactcccc gaaatgccaa aattatcaat gtctgcaact ggatcctctc      300
ttcagccatt ggtcttctctg taatgttcat agctacaaca aaatacaggc aaggttccat      360
agattgtaca ctaacattct ctcatccaac ctggtaactg gaaaacctgc tgaagatctg      420
tgttttcatc ttgccttca ttatgccagt gctcatcatt accgtgtgct atggactgat      480
gatcttgccg ctcaagagtg tccgcatgct ctctggctcc aaagaaaagg acaggaatct      540
tcgaaggatc accaggatgg tgctgggtgg ggtggctgtg ttcatcgtct gctggactcc      600
cattcacatt tacgtcatca ttaaagcctt gggtacaatc ccagaaacta cgttccagac      660
tgtttcttgg cacttctgca ttgctctagg ttacacaaac agctgcctca acccagtcct      720

```

ttatgcattt	ctggatgaaa	acttcaaacg	atgcttcaga	gagttctgta	tcccaacctc	780
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cacggccaat	acagtggata	gaactaatca	tcaggtagcg	agtctctaga	attaggtata	900
tctactgggg	atgacataaa	aattataagg	ctttgtgcta	aactaggagt	ttaatccatt	960
atagaggatg	agaatggagg	gaagggaaaag	caaattgtgg	tttaaggggt	aaagaagagg	1020
tttgatatata	aactgggggtc	ctttaaattt	gcctgtacat	attcattaag	gtttaaggat	1080
ccccaatggg	naaaaccatg	gaacttttca	aaataccttt	tttatggcct	ttacttttat	1140
gcaaaaattta	tgacttttagc	acattataga	aataattctg	atctagaatc	cttttcattt	1200
tccccagaat	tattatataa	ttcatagatg	ttctgcaata	cccctcttat	ttctcaaaaag	1260
ccagtcttgc	tctggtttct	ggattaaaga	gagaggggtga	gtgccttgcc	cactgtgggtc	1320
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aaaaaancat	gtcggccgcc	tcggccaaac	atcgggtcga	gcatgcatct	agggcggcca	1440
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ccagcgggaac	caaaacccat	cgtgggtatgt	gaatcggaagt	catcataaaa	ggtgaccctt	1560
ctgtctgtaa	gatttttaatt	taagcatata	tttatgacct	caacaaagac	gaaccatctt	1620
ttgttaattc	accgtagtaa	cacataaagt	tatgctacct	ctgatcaaag		1670

<210> 24
 <211> 25
 <212> DNA
 <213> Homo Sapiens

<220>
 <223> Primer

<400> 24
 gaatcctttt cattttcccc agaat 25

<210> 25
 <211> 23
 <212> DNA
 <213> Homo Sapiens

<220>
 <223> Primer

<400> 25
 aaccagagca agactggctt ttg 23

<210> 26
 <211> 39
 <212> DNA
 <213> Homo Sapiens

<220>
 <223> Primer

<400> 26
 ataattcata gatgttgctg caatacccct cttattttct 39

<210> 27
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Artificial

<400> 27
aggtcgtgta ctgtcagtca

20

<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial

<400> 28
acgtggtgaa ctgccagtga

20

<210> 29
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Opioid polypeptide

<221> VARIANT
<222> 2
<223> Xaa = D-Alanine

<221> VARIANT
<222> 4
<223> Xaa = N-methylphenylalanine

<221> VARIANT
<222> 5
<223> Xaa = Gly(ol)

<400> 29
Tyr Xaa Gly Xaa Xaa
1 5